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WHITE PAPER

# THE ROAD TO HANA

## EXECUTIVE SUMMARY

With the SAP ERP customer transition deadline to S4/HANA looming, it is important to understand how to best navigate the new standard. There are many challenges that await organizations who are on this path to HANA.

In addition, there is an added layer of complexity with the move to HANA, necessitates a content storage strategy previous SAP platforms did not require. Both of these moves can be daunting, but this white paper explains the transition to HANA and the transition to using cloud-based computer resources, the advantages of understanding the path ahead, and being confident in how to migrate your SAP Database to SAP HANA successfully.

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## INTRODUCTION

The Hana Highway on the Hawaiian island of Maui stretches from the town of Kahului to the remote town of Hana, but the portion from Pa'ia to Hana is infamous for how winding and narrow it is. It takes over two hours to make the drive, even though the towns are only about 50 miles apart.

As a tourist on this road several years ago, I rode the brakes of our rental car so hard that we had to stop to let them cool off. Meanwhile, the locals who knew the road sped by us with ease and speed because they knew exactly where they were going, where the difficult turns were and the best approach to taking them.



## THE ROAD TO S4/HANA

SAP has set a deadline of 2027 for its ERP customers to transition to S4/HANA, which an ERP running on SAP's proprietary in-memory database is called SAP HANA. Much like the Hana Highway, there are many twists and turns you'll have to navigate when transitioning to this new database paradigm. That's why we refer to this transition as the "Road to HANA." Much like the actual road, you can travel it as an unprepared tourist or navigate it like a local who knows exactly what to expect<sup>2</sup>.

SAP HANA itself is a platform for business data that provides a relational database optimized for transactional (OLTP) and analytical (OLAP) processing. It resides "in-memory," which



1 The Ultimate Road Trip: Driving to Road to Hana. December 2, 2016. [Weartravelgirls.com](http://Weartravelgirls.com)

2 Chris Caplinger and Adam Page. Building a Better Information Engine. [Gimmel.com/webinar-landing-page-building-a-better-information-engine](http://Gimmel.com/webinar-landing-page-building-a-better-information-engine)

means that it primarily relies on main memory to store data rather than disk storage.

Such in-memory access provides for much faster access to and processing of data. In addition, the knock-on effects of slower disk-based access, such as race conditions and deadlocks, are greatly reduced in such a system. This leads to the main benefits of running enterprise resource planning (ERP) software on such an in-memory system: transactional speed, data integrity, and real-time analytics.

With the benefits of running ERP software on an in-memory database it makes sense for SAP to push customers towards this technology and transition its flagship software to use it. However, there are considerations to make with transitioning from a disk-based database to an in-memory one, the chief of which is total cost of operation. The cost of main memory is, byte for byte, considerably greater than that of disk storage<sup>3</sup>.



## A BEND IN THE ROAD

This premium price tag means that storing data that is not directly necessary for transactions or analytics in an in-memory database is not cost-efficient<sup>4</sup>. This is particularly an issue for SAP ERP users that are accustomed to a traditional disk-based database and have stored unstructured content (supporting documentation for transactions, reports, etc.) there for convenience. Storing these items in the SAP database is not cost-effective when running on SAP HANA.

This is the first twist in the “Road to HANA” that an organization must

deal with: they’ll have to identify the unstructured content currently stored in the SAP Database and transfer it to a content server. This should be done in such a way as to preserve its utility to the end user<sup>5</sup>.

Content should continue to be accessible from the SAP user interface, and any solution should provide a process for adding new content in the same intuitive way. SAP provides for this requirement with their “HTTP Content Server” protocol.

There is an additional opportunity in moving unstructured data out of the ERP database and into a true enterprise content management (ECM) system. In addition to reducing the footprint of the application database, it becomes possible to provide this content and associated metadata to users and processes outside of the ERP system. This has implications across approval workflows, e-discovery and legal holds, managing retention schedules, and dozens of other use cases.



## GO EASY ON YOUR BRAKES

Hopefully that provides a taste for what I mean by “the road to HANA,” and provides a good example of the challenges that await those organizations who will travel it. We will dig deeper into this challenge, discuss some approaches to addressing it, and consider the opportunities that addressing it provides later in this white paper.

Moving your unstructured content out of the SAP database and into ECM is essential for transitioning to a HANA-based SAP deployment. Knowing this and addressing it early will make you feel like a local traveling the road to HANA, and avoid you needing to use the brakes too often along the way.

<sup>3</sup> EIM in the Age of HANA. [Info.Gimmal.com/eim-in-the-age-of-hana](http://Info.Gimmal.com/eim-in-the-age-of-hana)

<sup>4</sup> EIM in the Age of HANA. [Info.Gimmal.com/eim-in-the-age-of-hana](http://Info.Gimmal.com/eim-in-the-age-of-hana)

<sup>5</sup> Cynthia Wood. 3 Ways to Solve the “User Problem” in SharePoint. Hubspot Blog. April 11, 2017. [Gimmal.com](http://Gimmal.com)



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## CLOUD SPOTTING ON THE ROAD TO HANA

On the Hawaiian island of Maui, just like the road, lies the world's largest dormant volcano: Haleakala. You can look out above the clouds from the viewing platform atop, getting a unique perspective at the sky borne condensation that bring soft rains to the lush island below.

There are advantages that we see of coordinating the move to HANA with a move out of the datacenter and into the "cloud". Before I get in to the details, I want to stretch the analogy of the "Road to HANA" a little further. Both the transition to HANA and the transition to using cloud-based computing resources can be daunting in similar ways. In both cases, though, the advantages of

knowing the terrain ahead enables the journey to be smooth. And knowing what the world looks like when you have reached the clouds can inspire you to make the climb.



## S/4 HANA IN THE CLOUD

With SAP's deadline of 2027 for its ERP customers to transition to S/4 HANA looming ahead, one option for making this transition is to coordinate the database move with a move to cloud-based computing resources. This allows your organization to reduce data center costs while quickly provisioning the computing assets needed for HANA, as well as "future-proofing" your implementation by making it easier to increase performance as computing technology advances<sup>7</sup>.

6 Jess McHugh. The Sunrise in Maui is so Popular You'll Need a Reservation to See it. February 2, 2017. Travel & Leisure  
7 Forrester Total Economic Impact Study. The Total Economic Impact of Microsoft Azure IaaS. June 2017

Cloud adoption is increasing each year with the apparent primary driver for this shift being the cost of maintaining private data centers. For organizations to maintain competitiveness, it is necessary to reduce total cost of ownership (TCO) for IT systems. Migrating these systems to cloud-based computing can reduce data center space and hosting costs by 50 -73%<sup>8</sup>.

SAP ERP and NetWeaver have historically run on a multitude of OS and database platforms: commercial UNIX, Microsoft Windows, and Linux operating systems; and MS SQL, Oracle, DB2, MySQL, and other databases. With HANA, however, they have broken this trend, running only on certain enterprise Linux distributions as of March 2019. This is particularly significant for those organizations making the move to HANA that do not currently run their SAP software on these Linux distributions.

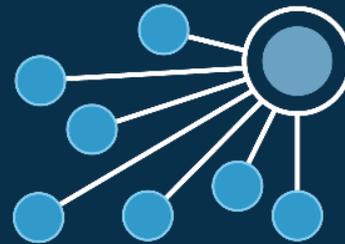
Coordinating the transition to cloud-based computing with the transition to an SAP HANA database then makes particular sense for these organizations. In lieu of spinning up an unfamiliar system inside their data center, IT resources can be applied to managing other technical challenges of the move to HANA. The modular nature of cloud-based computing allows for scaling up and down and quickly provisioning proof-of-concept or pilot systems for the transition project.



## GETTING TO CLOUD LEVEL

There are several options for organizations to consider when coordinating the move to the SAP HANA database and S/4 HANA system with a move to cloud-based computing. One option is to perform a “lift and shift” of the current environment to cloud-based resources. Once the landscape is moved whole-parcel to the cloud, the transition to HANA and S/4 HANA can be taken on individually or together. Other organizations

## Benefit And Cost



Avoided data center and outsourcing costs:

**\$21.9 million**



Data center reduction:

**73% by Year 5**



Outsourcing cost reduction:

**Between 33% and 83%**



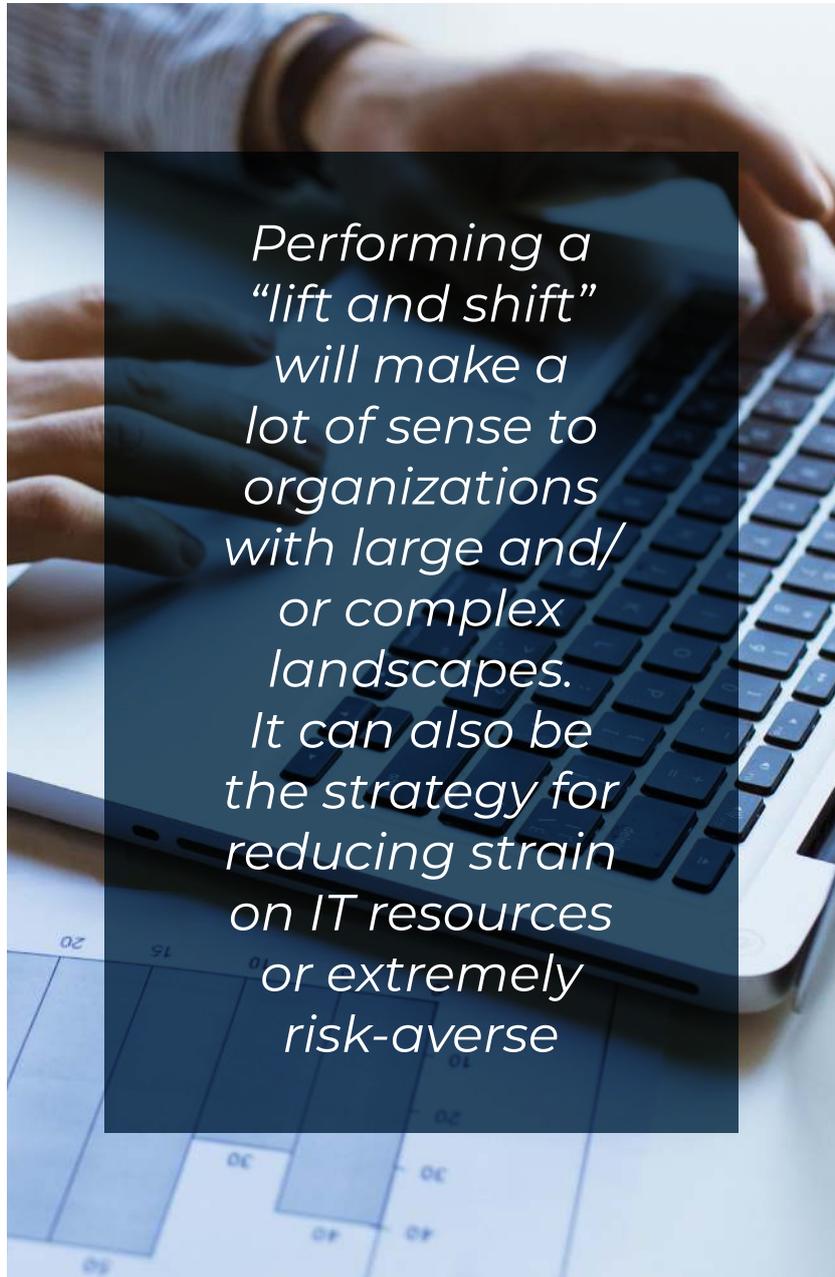
<sup>8</sup> Forrester Total Economic Impact Study, The Total Economic Impact of Microsoft Azure IaaS, June 2017

may prefer to transition the database to HANA at the same time they move their landscape to the cloud in a “lift and migrate”. They can then take on the implementation of S/4 HANA. Finally, an organization may decide to perform a “greenfield” implementation of S/4 HANA in the cloud, essentially re-implementing their processes directly in a new S/4 HANA environment.

Performing a “lift and shift” will make a lot of sense to organizations with large and/or complex landscapes. It can also be the strategy for reducing strain on IT resources or extremely risk-averse organizations. The benefits of data center cost reductions are realized to a certain extent, and follow on migrations are then able to take place within the cloud platform. From there, the decision on whether to implement S/4 HANA at the same time as migrating to the in-memory HANA database is likely to be based on the complexity of the implemented ERP processes and the amount of customizations present.

It is also possible for those organizations that are ready to migrate off their current database to “lift and migrate.” This may be due to the available support for the legacy database platform in the cloud, as the databases supported by SAP ERP and NetWeaver are numerous and not all are readily available in cloud platforms. This approach takes more initial planning than the “lift and shift” strategy, but positions the organization to flip the switch on the cloud and then concentrate solely on the implementation of S/4 HANA.

Finally, for those organizations preferring a fresh-start in S/4 HANA, a full greenfield implementation is possible in the cloud. Cloud-based computing allows for spinning up the new landscape in parallel with an existing legacy landscape without having to provision any new resources in the current datacenter. This will take more extensive planning for the cutover to the new systems, but can be a fantastic option for approaching S/4 HANA without the baggage of previous decisions, and with the lessons learned from previous implementations<sup>10</sup>.



*Performing a “lift and shift” will make a lot of sense to organizations with large and/or complex landscapes. It can also be the strategy for reducing strain on IT resources or extremely risk-averse*

<sup>10</sup> A New Platform is not a new Strategy: Don't Migrate your Problems along with your Content. May 3, 2017. Gimmel.com



## SOMEWHERE OVER THE RAINBOW

Whether in weather or enterprise computing, it is easy to be wary of the oncoming cloud. For the enterprise organization, the transition to cloud-based computing can be a great unfamiliar unknown and difficult to see through or beyond. However, the ability to reduce costs and provision quickly through cloud platforms can be powerful tools for empowering other technology transformations.

As we have seen, this is particularly true for the transition to the in-memory SAP HANA database and the S/4 HANA ERP system. The technical challenges in making this transition are addressed by the realized promise of the cloud-based computing revolution. The specific strategies for taking advantage of this are going to differ between organizations but will follow those outlined here. Regardless of how you get there, I promise that the view from cloud level is worth the journey.



## HOW TO MIGRATE YOUR SAP DATABASE TO SAP HANA

I have spoken about the parallels of the transition of the SAP Application Database to SAP HANA and the gorgeous and dangerous road to Hana in Maui. The actual road to Hana is listed as last on BMWBlog.com's list of "Five most dangerous roads in the world<sup>11</sup>," but it still made the list! The hairpin turns and the drop-offs are part of the reason, although another large part is the ability to get distracted by the views.

This is what makes it the perfect metaphor for what we at Gimmel refer to as the "Road to HANA." Without a plan and an understanding of what lies ahead, it is possible to get distracted by the (admittedly exciting) prospect of real-time analytics and improved application responsiveness delivered by a fully in-memory database. Let's cover the more general case of what you need to consider before making the move to SAP HANA.



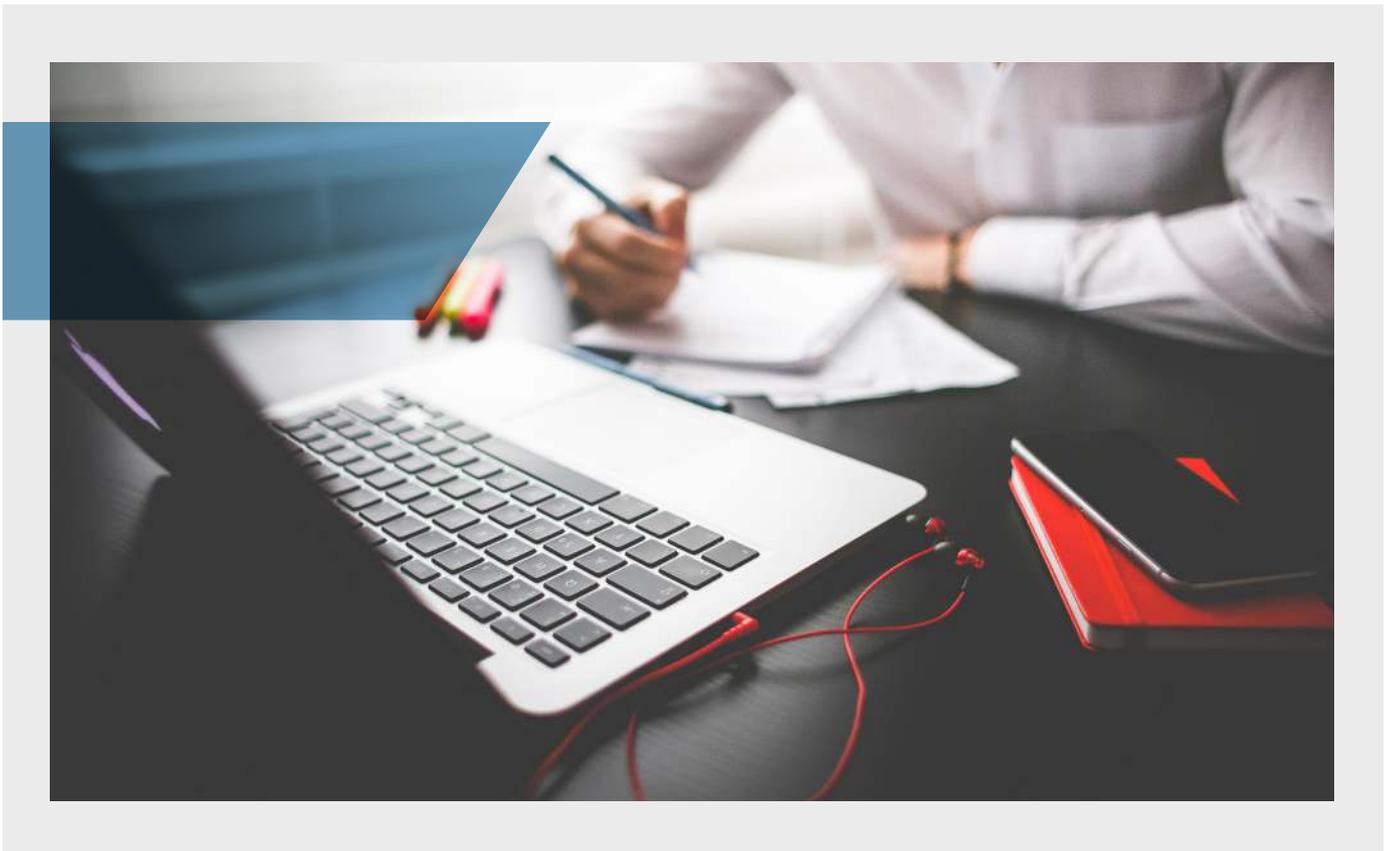
## TRAVEL LIGHT AND TAKE ONLY WHAT YOU NEED

The first thing to consider before setting off with your database on the "Road to HANA" is data volume. This is a concern both for the total size of the database as well as individual tables. The total size is important due to the in-memory nature of HANA. The more unnecessary transactional data you have in your database, the more "luggage" you are carrying and will have to account for in your final HANA system. This is also

<sup>11</sup> Nico DeMatta. Five Most Dangerous Roads in the World. BMWBlog.com. August 6, 2015

important for individual tables, as tables with large data volumes (i.e. over 2 billion) must be partitioned before migrating to SAP HANA (See SAP Note 1785057<sup>12</sup> for more details).

Also, in the SAP Note are details about a conversion needed for pool and cluster tables into transparent tables that will happen as a part of migration. This is important for custom code that refers to these tables, and the SAP Note 1785057 contains details about how to make the adjustment is custom ABAP code.

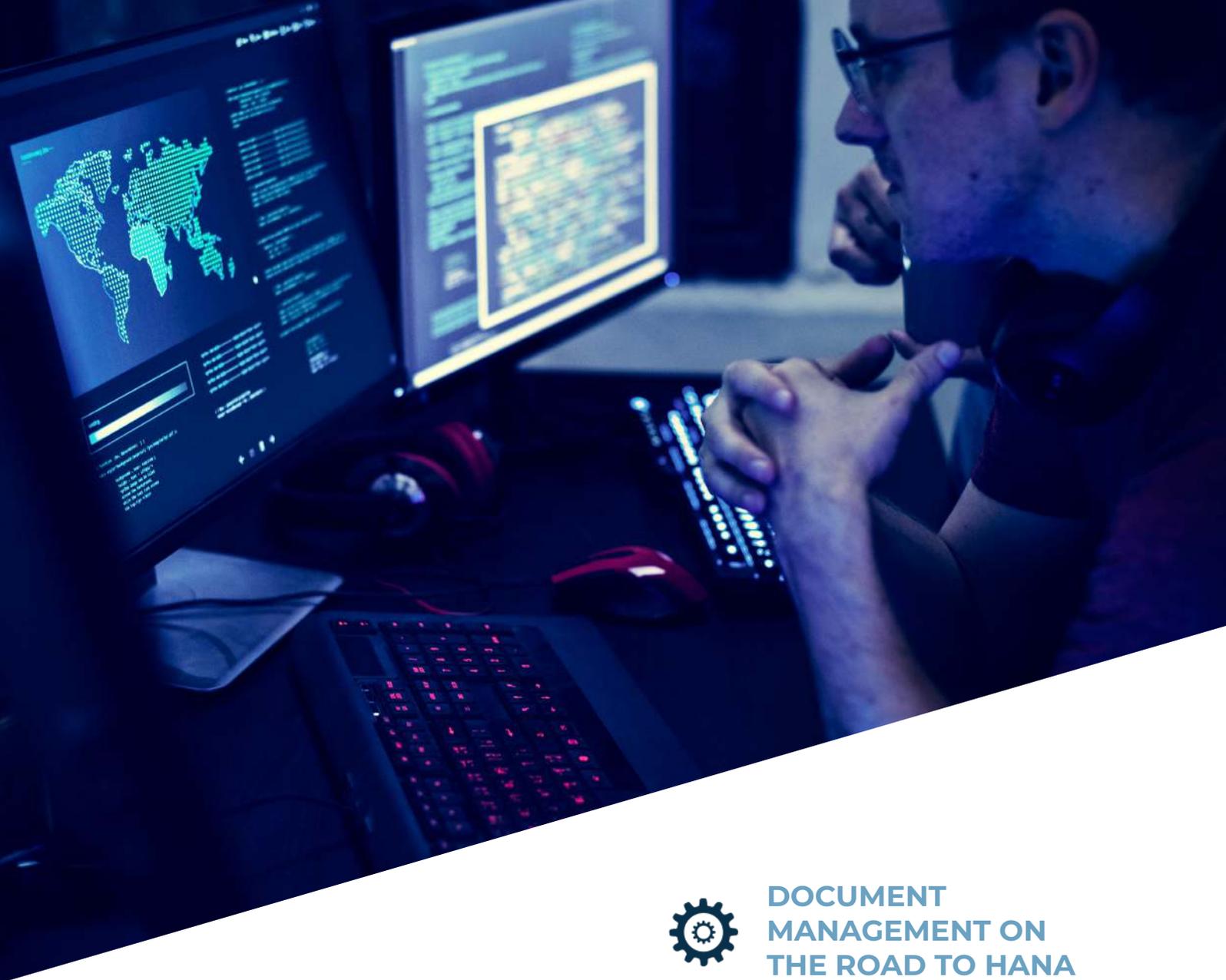


## MAKE SURE TO CHECK YOUR “EQUIPMENT”

When driving the road to Hana, you need to know your vehicle, and to be able to trust your brakes and tires to operate to spec. Similarly when preparing for the “Road to HANA” you need to have certified solutions for hardware and software.

For SAP HANA-Certified hardware, the easiest option is to consider is using a cloud provider. All the major cloud providers are actively building out their cloud offerings for SAP HANA, and the choice of which to go with is a significant decision dependent on too many factors to get into here. Suffice it to say, SAP HANA in the cloud has attracted the major players: Microsoft Azure, Amazon Web Services, and Google Cloud.

<sup>12</sup> SAP Note 1785057. [Launchpad.support.sap.com/#/notes/1785057](https://launchpad.support.sap.com/#/notes/1785057)



## DOCUMENT MANAGEMENT ON THE ROAD TO HANA

If your organization's strategy is to take an on-premise approach, then SAP maintains a directory of certified hardware here: [Certified and Supported SAP HANA® Hardware<sup>13</sup>](#).

From a software perspective, it is vital to use an SAP-Certified ArchiveLink solution for data archiving, print list archiving, and archiving of unstructured content. Which solution you choose will have a lot to do with how you want to store this data. For example, for an organization using Office 365 and SharePoint Online for their Document Management, the use of a SharePoint compatible and SAP Certified ArchiveLink solution is vital.

Another vital preparation on the “Road to HANA” is to look for the content that does not belong in your SAP Application Database to begin with: unstructured content or, as it is known more colloquially, documents. These are the supporting documents to the structured transactional data that should be pushed to ECM as part of your standard business processes. It is also important for business process health, as storing document content in your organizational ECM allows this content to be found by users where they expect business document content to be stored. This consistency when applied across business processes helps to realize the promised efficiencies of enterprise-wide systems.

<sup>13</sup> Certified and Supported SAP HANA Hardware. September 2, 2014. [Sap.com/dmc/exp/2014-09-02-hana-hardware/enEN/index.html](http://Sap.com/dmc/exp/2014-09-02-hana-hardware/enEN/index.html)

## CONCLUSION



The intersection of ERP and ECM is the Shangri-La of enterprise computing, or perhaps it is the realistic earthly equivalent that is Hana. ERP powered by SAP HANA is the promise of real-time analytics and in-memory performance. ERP integrated with ECM is the key to keeping in-memory database costs down and enabling business process documentation that is visible to the right users where they expect it. Getting there will involve twists and turns but knowing what lies ahead on the “Road to HANA” is the key to navigating it.

## About Gimmel

Information is the lifeblood of the enterprise and it must be managed to ensure compliance, security, and usability. It is one of your most valuable assets, and yet it grows at an unmanageable rate. The continuous expansion of the digital workplace makes it almost impossible to utilize your corporate information to its fullest potential.

Gimmel simplifies records and information management with software that captures, manages, governs, and archives information so you can focus on your core mission. We do this by providing a fully-integrated information lifecycle that automates the capture of metadata and maximizes information findability, usability, and productivity. We break down the barriers between information silos, help identify obsolete data, and manage disparate content by providing a common approach for information governance and records management.

Gimmel software allows you to fully manage the lifecycle of content in SharePoint, Office 365, box, SAP, and other platforms. Learn more at [www.Gimmel.com](http://www.Gimmel.com)



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